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ABSTRACT

The paper reports the results of a field test of a future studies program for students in grades eight through ten. The first section reviews the small amount of research that has been done in the area of future studies instruction. The program which was evaluated in this study is a teacher-led instructional program containing 42 to 70 class sessions. One goal of the program is to integrate skills and strategies of inventive problem solving with content and activities focused on the investigation of alternative futures. Over 300 students and ten teachers in Philadelphia schools participated in the field test. This report describes the test design, procedures, and results of only one subset of the total field test population. Eighth and tenth grade groups voluntarily chose to take either the future studies course or a traditional elective in "human society." Two measures of students' orientation toward the future were used as pre- and posttests for all groups: a questionnaire measuring attitudes toward the future (for example, optimism versus pessimism) and an essay which asked students to describe what their life might be like on a typical day 20 years in the future. Extensive statistical analysis of results showed that the experimental future studies program was fairly successful in increasing the fluency, flexibility, and originality of students' descriptions of possible futures, but it was not successful in altering their beliefs and attitudes about the future. (Author/AV)

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Effects of a Futures-Focused Curriculum on Futures Orientation among Junior and Senior High School Students

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A paper presented at the Annual Meeting of the American Educational Research Association, Toronto, Ontario, March, 1978

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Introduction

There is a growing interest on the part of educators in providing instruction about the future. Arguments offered for instituting courses in futures studies[1] (a.k.a., futuristics, futurism, futurology) typically center on a criticism of the past-to-present orientation of the curriculum and on the necessity to prepare students for a rapidly changing world (e.g., Toffler, 1970). An examination of the emerging literature on teaching about the future reveals a variety of goals and methods (Rojas and Eldridge, 1974; Stock, 1977). However, there is, at least, one commonality across the approaches and prescriptions that can be found in this literature: the recognition that a futures-focused curriculum must attempt to affect fundamental changes in students' attitudes or orientation toward the future. Determining what this goal means, how best to go about accomplishing it, and how to know when you have been successful has by no means been accomplished. A previous paper (Thomas, 1976) presented a model for a futures-studies program and a taxonomy listing possible dimensions of "futures orientation." This paper reports the results of a field test of the above-mentioned program, *Making Changes*, with special attention to the

effects of the program on selected dimensions of students' orientation toward the future.

Relevant Literature

Research in the area of futures-studies instruction is almost non-existent. Likewise, educators interested in identifying what might constitute meaningful changes in students' futures orientation cannot find much assistance from the literature. Singer (1974) defines a "future-focused role concept" as the image a person has of himself or herself in some future role. According to Singer, the possession of such an image correlates positively with achievement in school, the avoidance of delinquency and a feeling of optimism about the future. Toffler (1974) reports an informal study in which a group of high school students were asked to compose a list of events that might occur in the future as well as a list of events that might happen to them personally. The disconnectedness between these lists, that is, students' tendency to believe in dramatic world changes while projecting a conventional future for themselves, is viewed by Toffler as evidence that the majority of students fail to personalize their expectations about social change.

Torrance (1976) reports a study conducted with gifted high school students enrolled in a summer career education and futurism program. Students were asked to write a career narrative plan and either a scenario about a day or week in their life in the year 2001 or a

soliloquy, a statement of accomplishments written as if the student was writing in the year 2001. These exercises were administered as pretests and posttests to the 200 high school students who participated in the program as well as 138 control students. Results were scored according to the following dimensions: (1) expressed satisfaction with future career, (2) perception of the world/mankind as changed, (3) heightened consciousness of trying to do something to make the world better/solve future problems, (4) originality, imagination, and involvement, (5) solutions to future problems proposed, and (6) perception of self as a creative problem-solving person. Torrance also compared pretests to posttests relative to the number and nature of topics ("areas of concern") mentioned. The scenario was found to be the most sensitive measure of treatment effects. Posttest means were found to be significantly higher than pretest means on all six dimensions listed above. Torrance also found that all nineteen areas of concern identified prior to the study were mentioned more often in the posttest scenarios than in the presttest scenarios.

Kauffman (1976) in a book addressed to practitioners interested in "teaching the future," emphasizes the importance of a questioning attitude about current knowledge and "facts," a tolerance for ambiguity, a disposition to be imaginative, and an awareness of alternative futures as both attributes of a teaching strategy and as possible outcomes of a course in futures studies. Kauffman presents a fifteen-item questionnaire which he offers as a measure of students' futures

orientation.[2] This questionnaire is made up of Likert-scale questions that appear to measure students' beliefs relative to (1) the inevitability of change, (2) the degree to which we (the human race) have control over the future, and (3) the desirability of the future. It is important to note that Kauffman does not offer any hypotheses regarding the direction of changes expected or desired.

Despite the fact that the literature on futures studies is fairly recent and sparse, there is no scarcity of imaginative ideas for intional strategies. The problem centers on the lack of research, as well as documented speculation, concerning relationships between instructional methods and specific outcomes.

Program Description

The *Making Changes* program is a teacher-led instructional program for students in grades 8 to 10.[3] The program includes teacher and student materials designed to provide a flexible, 42 to 70 session course integrating instruction in skills and strategies of inventive problem-solving with content and activities focused on the investigation of alternative futures.

There are four dimensions to the goals of the program. These four dimensions are listed below along with some of the major sources from which methods and objectives were borrowed or adapted:

1. Strategies for defining and solving open-ended problems: the Osborne-Parnes Creative Problem Solving Model (Osborne, 1963; Parnes, 1967); the Synectics Model (Gordon, 1961; Gordon & Poze, 1972

2. specific techniques for facilitating fluency, flexibility, and originality (Gordon, 1961; Davis, 1969; Torrance, 1976)

3. skills and strategies for interpreting trends and generating forecasts about the future (Glenn, 1975; Kauffman, 1976; Torrance, 1976)

4. attitudes and dispositions conducive to inventive problem solving (Parnes, 1967); to the investigation of alternative futures (Kauffman, 1976); and to a healthy orientation toward the future (Kauffman, 1976; Torrance, 1976).

The program is divided into three units.[3] The first unit is addressed to problem solving. A multi-stage model is introduced for proceeding from a complaint or difficulty to the selection of a solution idea according to established criteria. Specific techniques are taught for each stage of the process with an emphasis upon problem definition strategies and idea generation techniques. The second unit is an introduction to futures studies. Students learn why people study the future; how to interpret forecasts and trends; how to construct forecasts; and how to use techniques for identifying the consequences and cross-impact of trends and forecasts. The third unit teaches the Synectics problem-solving method and provides a series of future-focused, problem-solving episodes designed to review and integrate skills and strategies taught earlier in the program.

Materials for the *Making Changes* program consist of a Teacher's Guide, three student lesson books and a packet of consumable handout sheets. The Teacher's Guide presents outlines for 24 lessons and directions for giving homework and in-class assignments and for providing guidance and feedback relative to the exercises contained in the lesson books and handouts.

The field test.[4] A field test of the program was conducted in one urban and five suburban schools in the Philadelphia area during the Spring of 1977. Participants in the field test included ten teachers and over 300 students in grades 7, 8, 10 and 12. A total of 18 assessment devices was used to gather data relative to the appeal and acceptability of the program, students' mastery of program concepts and strategies, changes in students' attitude toward problem solving and group work, and changes in the fluency, flexibility and originality of students' responses on a variety of creative thinking and problem-solving tasks as well as changes in students' orientation to the future. A concern for test burden (see note #4) prevented all students from receiving all measures. Accordingly, the remainder of this paper will present the design and procedure for one subset of the total field test population and the results for a subset of the total tests administered. A complete report of the field test results is available elsewhere (Coan and Ruff, 1976).

Hypotheses. The primary goals of the program are cognitive in nature. Even within the futures studies lessons, the principal intent is to teach skills and strategies for generating forecasts. However, by virtue of students' exposure to varieties of forecasts, trends and descriptions of alternative futures, some tentative hypotheses about the effect of the program on students' orientation toward the future seemed worthy of investigation. It was hypothesized that students

who took the program would: (1) show a change in the direction of believing that the future is controllable through human action; (2) show a change in the direction of believing that rapid change will be more characteristic of the future than the past; (3) become more articulate about possible futures (fluency); (4) be able to name/describe more distinct developments or changes in their description of possible futures (flexibility); and (5) be less conventional in their forecasts (originality). No hypotheses regarding changes in students' optimism about the future were considered.

Subjects and Design. Nine of the 13 classes of students that participated in the field test serve as the sub-sample for this analysis. The breakdown by grade and treatment for this sub-sample is presented in Table 1.

Insert Table 1 here

At Site A, students were randomly assigned to experimental and comparison groups at the beginning of the Spring semester. The resultant groups represented the entire population of eighth graders at that site. At Site B, the experimental subjects consisted of all of the eighth graders at that school who scored above 130 on the Otis-Lennon Mental Ability Test (intermediate level). No comparison group was, of course, available for this class. The design at Site C must also be classified as quasi-experimental. At the beginning of the

semester, all tenth-grade students were given the option to choose among social studies electives. Students who opted for one of those electives, "Human Society," were randomly assigned either to the traditional Human Society elective course or the *Making Changes* course. However, a small number of students were allowed to select themselves into the *Making Changes* course and this may have affected the comparability of the two classes.

Instruments. Two measures of students' orientation toward the future were employed in this study. The "Futures-Orientation Survey" (Appendix A) is a modification of Kauffman's (1976) survey which he entitled "What fundamental beliefs about the future do you hold?". Twenty Likert-scale items were constructed in order to attempt to measure reliably four dimensions of futures orientation: students' optimism vs. pessimism about the future; determinism vs. freedom to control/influence the future; the predictability vs. uncertainty of the future; and the positive vs. negative value of studying the future. Factor analysis of these items revealed three rather than four factors (see Table 2.)

The second measure of students' orientation toward the future was the Scenario measure (Appendix B). The Scenario measure consisted of a single timed essay question which asked students to describe what they might be doing in a typical day or week and what the world might be like 20 years from now. This measure is essentially the same as Torrance's (1976) scenario measure except that the phrase "20 years from now" was used instead of "the year 2001."

Data Analysis. Because of the repeated measures design employed in the study and because of expected correlations among the dependent variables, a repeated measures multivariable analysis of variance (MANOVA) procedure was used. Significant multivariate results were followed up by discriminant analysis procedures in order to determine the variables which accounted most for observed differences between experimental and comparison groups. The discriminant analysis yields a standardized discriminant function coefficient (SDFC). Inspection of univariate results was also made to assess group differences. The Alpha level for univariate results was set at $p<.025$ as opposed to $p<.05$ for MANOVA) in order to reduce the error involved in performing multiple tests.

Results

For the Futures-Orientation Survey, mean scores were obtained for the three factors: Lack of Control, Change and Pessimism. Results at Site A and Site C showed that neither the multivariate results nor the univariate results were statistically significant. At Site B, the MANOVA F-ratio (Table 2) indicated that when all three factor scores were considered simultaneously, pretest-posttest differences were statistically significant. The factor which contributed most to this difference was Lack of Control as shown by the highly significant univariate F-value. A decrease on the Lack of Control factor is indicative of change in the direction of characterizing the future as more controllable.

Insert Table 2 here

The Scenario measure was administered as both a pretest and a posttest to experimental students and as a posttest to control students at Site A. Table 3 presents multivariate and univariate ANOVA results for pretest to posttest differences on the Scenario for experimental subjects at Site A. The multivariate F-ratio indicates significant pretest/posttest gains for all variables. Univariate t-values revealed statistically significant results for each Scenario index.

Insert Table 3 here

A scheduling problem resulted in a lack of pretest scores for 22 of the 67 experimental subjects at Site A. In order to compare the posttest scores of the experimental students to those of the controls, it was decided to compare only those students who had never been pretested in order to control for possible testing effects. Table 4 presents the results of this comparison. The multivariate F-ratio indicates a significant difference between the group centroids.

Insert Table 4 here

At Site B, the multivariate F-ratio for pretest-posttest differences on the Scenario was not significant (Table 5). However, posttest scores on the Fluency and Flexibility indices were significantly higher than pretest scores.

Insert Table 5 here

At Site C a significant multivariate F-value was obtained for the comparison between experimental and control posttest scores (Table 6).

A univariate analysis revealed that this overall difference was primarily attributable to the significantly higher scores for the experimental as compared to control students on the measures of fluency and flexibility.

Insert Table 6 here

Discussion

The results suggest that the *Making Changes* program was fairly successful in increasing the fluency, flexibility and originality of students' descriptions of possible futures but was less than successful in altering students' beliefs and attitudes about the future.

Intercorrelations among the four indices of the Scenario measure ranged from .39 to .85 for the posttest data. Given the interdependence of these indices, results from the multivariate analyses represent the most meaningful measures of the program's effectiveness. MANOVA results revealed significant gains at one of the two sites where pretest as well as posttest data were collected. And at both sites where the posttest performance of experimental students was compared to controls, experimental students significantly outperformed controls on the Scenario measure. In general, it appears that the program was effective in increasing the total number of words on the Scenario measure, the number of distinct developments mentioned, the number of original (unconventional) forecasts written and the percentage of conventional

forecasts as a function of total forecasts.

The results from the Scenario measure are in line with expectations. However, the meaning of these results can best be described as ambiguous. On the one hand, it is possible to conclude that exposure to the program made students more disposed to write about the future; it fostered a more differential view of the future; and it resulted in more imaginative ideas and less conventional descriptions of future possibilities. On the other hand, students no doubt picked up ideas and forecasts about the future from the program that they introduced in their Scenarios. Results favoring the experimental group may be attributable to the recall of information rather than any changes in students' dispositions or beliefs. Perhaps a more meaningful analysis would have been one that controlled for ideas, developments, and forecasts included in the program.

The results for the Futures-Orientation Survey were disappointing. Either the dimensions (or questions) used were not sensitive to program effects on students' attitudes and beliefs, or the program was not sufficiently powerful to produce a change in attitudes and beliefs about the future. Additional research as well as test development activities seems to be needed in this area. The only significant effect revealed by the analyses of the Future-Orientation Survey occurred at Site B. Experimental students showed a highly significant change towards the belief that the future is controllable. It should be noted that the Site B class failed to complete the program. Unlike

the other sites which were not posttested until four to five weeks after the completion of the futures studies unit, students at Site B were posttested on the very next day following completion of the unit. Again, no clear inferences can be made. The results for Site B may mean that whatever the effects of the program on students' attitudes are, they are short-lived at best. Alternately, since students at Site B differ from students at other sites by virtue of their higher mean IQ, the program may be particularly suited for producing attitude changes with gifted students.

A final conclusion is difficult to construct. To do so, it is necessary to distinguish between the study as part of a field test of an instructional program and the study as an investigation into the nature and malleability of students' orientation toward the future. With regard to the field test, overall, the *Making Changes* program was judged to be relatively successful in accomplishing what it was designed to accomplish. Given the cognitive focus of the program, changes on the Scenario were judged to be more likely and more meaningful than changes on the Futures-Orientation Survey. The data suggest that a program that combines instruction in inventive problem solving and futures studies can produce changes in students' images of the future in the direction of seeing the future in more differential, imaginative ways.

Implications of this study for further research in the area of futures orientation are less than clear. It appears that an intellectual approach to futures studies, that is, a focus on trends, anticipated

problems and possible developments, is not sufficiently powerful to affect changes in students' attitudes. Perhaps a more personalized approach is required. Given the likelihood that attitude change is an important component of a futures studies program, further research in this area is called for. Whether or not the attitudinal dimensions tested in this study are appropriate or sufficient for future research is an additional question that deserves attention.

Footnotes

[1]Futures-focused and futures studies are used instead of future-focused and future studies after Kauffman (1976) to emphasize that the future represents a set of alternatives.

[2]Kauffman reports that the questionnaire is a slightly modified version of a handout for a 1971 talk given by the futurist, Robert Bundy.

[3]The program in its present revised form is made up of four units.

[4]The term "field test" is often used to describe a final and summative test of an instructional program occurring subsequent to classroom tryouts and a pilot test of the assessment measures. In the present instance, this procedure was violated. Time constraints prevented a pretest of the measures and a tryout of roughly half of the lessons.

References

Coan, D. L., Ruff, F., & Thomas, J. W. Making Changes field test report. A formative and summative evaluation study of a futures-oriented, inventive problem-solving curriculum for grades 7-10. Report submitted to the National Institute of Education, Philadelphia: Research for Better Schools, 1977.

Davis, G. A. Training creativity in adolescence: A discussion of strategy. Journal of Creative Behavior, 1969, 3, 95-104.

Glenn, J. Futuring - A look at tomorrow today. In E. P. Torrance & W. F. White (Eds.), Issues and advances in educational psychology. Itasca, IL: Peacock, 1975.

Gordon, W. J. J. Synectics. New York: Collier, 1961.

Gordon, W. J. J., & Poze, T. Introduction to synectics problem solving. Cambridge, MA: Synectics Education Systems, 1972.

Kauffman, D. L. Teaching the future: A guide to future-oriented education. Palm Springs, CA: ETC Publications, 1976.

Osborn, A. F. Applied imagination: Principles and procedures of creative problem-solving. New York: Scribner, 1963.

Parnes, S. J. Creative behavior guidebook. New York: Scribner, 1967.

Rojas, B., & Eldridge, H. W. Status report: Sample syllabi and directory of futures studies. In A. Toffler (Ed.), Learning for tomorrow: The role of the future in education. New York: Random House, 1974.

Singer, B. D. The future focused role image. In A. Toffler (Ed.), Learning for tomorrow. New York: Vintage Books, 1974.

Stock, R. B. Futures Studies in U. S. high schools. World Future Society Bulletin, 1977, 11(3), 1-6.

Thomas, J. W. A model for a skill-oriented futures studies curriculum. Paper presented at the Annual Meeting of the American Educational Research Association, New York, April 1977.

Toffler, A. Future shock. New York: Random House, 1970.

Toffler, A. The psychology of the future. In A. Toffler (Ed.), Learning for tomorrow. New York: Vintage Books, 1974.

Torrance, E. P. Future problem solving and career education. Athens, GA: University of Georgia, 1976.

Table 1

Sub-sample of Field Test Classes Receiving Futures-Orientation Measures

Site	Grade Level	Treatment Group		Comparison Group		Ability Level
		Classes	N	Classes	N	
A	8	3	67	3	55	Average ability
B	8	1	13	N/A	N/A	Academically talented
C	10	1	23	1	28	Average to above average ability

Table 2

Multivariate and Univariate ANOVA Results of Pre- to Posttest Differences on Futures Orientation Survey Factors at Site B.

Factor	Pre-Test			Post-Test		Pre-Post Diff.	Univariate F-Value
	N	Mean	S.D.	Mean	S.D.		
Lack of Control	11	30.00	4.93	26.54	2.92	- 3.46	10.66**
Change	11	25.65	4.51	25.31	4.17	- 0.34	0.03
Pessimism	11	10.92	2.57	11.26	1.73	+ 0.34	0.23
MANOVA $F_{(3,8)} = 6.22^{*}$							

*Significant at the $p < .05$ level (based on a two-tailed test)

**Significant at the $p < .01$ level (based on a two-tailed test)

Table 3

Multivariate and Univariate ANOVA Results of Pre- to Posttest Differences on Futures Scenario Indices for Experimental Subjects at Site A

Index	Pre-Test			Posttest		Pre-Post Diff.	Univariate t-Value
	N	Mean	S.D.	Mean	S.D.		
Fluency	45	68.33	41.09	95.77	47.72	+27.44	4.09**
Flexibility	45	4.20	2.52	5.37	3.37	+ 1.17	2.10**
Originality	45	0.53	1.16	1.97	2.19	+ 1.44	4.75**
Originality-%	45	10.73	19.75	32.95	31.12	+22.22	4.36**
F approx. (4,41) = 7.36*							

*Significant at the $p < .05$ level (based on a two-tailed test)

**Significant at the $p < .01$ level (based on a two-tailed test)

Table 4

Multivariate and Univariate ANOVA Results of Experimental vs. Control Group Differences on Posttest Futures Scenario Indices at Site A

Index	Experimental[1]			Control			Univariate F-Value	SDFC[2]
	N	Mean	S.D.	N	Mean	S.D.		
Fluency	22	114.72	43.78	49	86.36	41.33	5.51	+0.91
Flexibility	22	5.77	2.26	49	5.10	2.44	0.57	-0.84
Originality	22	2.81	2.26	49	1.65	2.06	4.07	+1.66
Originality-%	22	41.72	32.57	49	30.32	30.99	1.82	-1.19
Group Centroid	+0.56			-0.25			MANOVA $F_{(4,64)} = 2.62$*	

*Significant at the $p < .05$ level (based on a two-tailed test)

[1]Data based on non-pre-tested subjects

[2]SDFC = Standardized Discriminant Function Coefficient

Table 5

Multivariate and Univariate ANOVA Results of Pre- to Posttest Differences on Futures Scenario Indices for Experimental Subjects at Site B.

Index	Pre-Test			Post-Test		Pre-Post Diff.	t-Value
	N	Mean	S.D.	Mean	S.D.		
Fluency	8	77.25	31.92	144.25	39.24	+67.00	5.11*
Flexibility	8	4.87	1.35	7.25	1.98	+ 2.38	3.25*
Originality	8	2.12	1.55	3.87	2.35	+ 1.75	2.33
Originality-%	8	46.37	29.46	53.12	28.46	+ 6.75	0.77
F approx. (4,4) = 5.84							

*Significant at the $p<.01$ level (based on a two-tailed test)

Table 6

Multivariate and Univariate ANOVA Results of Experimental vs. Comparison Group Differences on Posttest Futures Scenario Indices at Site C.

Index	Experimental			Comparison			Univariate F-Value	SDFC[1]
	N	Mean	S.D.	N	Mean	S.D.		
Fluency	21	116.95	49.10	22	72.45	37.73	10.43**	+0.98
Flexibility	21	6.47	2.42	22	4.36	2.25	8.88**	-0.06
Originality	21	2.57	2.89	22	1.22	1.77	3.26	+0.24
Originality-%	21	39.23	37.16	22	23.18	33.00	2.17	-0.15
Group Centroid	+0.47			-0.45			MANOVA $F_{(4,36)}$ = 3.05*	

*Significant at the $p<.05$ level (based on a two-tailed test)

**Significant at the $p<.01$ level (based on a two-tailed test)

[1]SDFC = Standardized Discriminant Function Coefficient

FUTURES ORIENTATION SURVEY

DIRECTIONS: For each statement below, show whether you agree or disagree with that statement by circling one of the five responses in the box. This is not a test. There are no right or wrong answers.

	STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE
1. Generally speaking, the human race is moving toward a more desirable future.	SA	A	NS	D	SD
2. Each person's future is largely a matter of luck (good breaks and bad breaks).	SA	A	NS	D	SD
3. It is possible to predict (be able to tell what will happen in) the future.	SA	A	NS	D	SD
4. The future 25 years from now is likely to be completely different from the present.	SA	A	NS	D	SD
5. American "know-how" can solve any problem that might occur in the future.	SA	A	NS	D	SD
6. Generally speaking, a person is able to control his/her future.	SA	A	NS	D	SD
7. Studying the future will help us to solve problems in the present.	SA	A	NS	D	SD
8. The future is a complete mystery—we have no idea what to expect.	SA	A	NS	D	SD
9. Not much is likely to change in the next 25 years.	SA	A	NS	D	SD
10. The future of the human race is largely beyond our control.	SA	A	NS	D	SD
11. It is possible that the future will bring problems that people will not be able to solve.	SA	A	NS	D	SD
12. The future will probably be less desirable than the present.	SA	A	NS	D	SD
13. Future problems will be even more difficult to solve than present-day problems.	SA	A	NS	D	SD

	STRONGLY AGREE	AGREE	NOT SURE	DISAGREE	STRONGLY DISAGREE
14. There won't be as much change in the next 25 years as there was in the last 25 years.	SA	A	NS	D	SD
15. At any given time, there is a wide range of possible futures open to us.	SA	A	NS	D	SD
16. Solving future problems depends, in part, on imagination (thinking of many different ideas).	SA	A	NS	D	SD
17. Studying (predicting) possible futures is a waste of time and money.	SA	A	NS	D	SD
18. We can expect even more change in the next 25 years than we've seen in the last 25 years.	SA	A	NS	D	SD
19. No matter what people do, the future will probably be less desirable than the present.	SA	A	NS	D	SD
20. A good way to solve future problems is to wait until they occur.	SA	A	NS	D	SD

Appendix B

SCENARIO

What might the world be like 20 years from now? What might be happening? What might be new and different? What might you be doing?

Use the space below and the back of this sheet to describe what the world might be like in 20 years' time. Try to describe a specific day or week in your life 20 years from today. DESCRIBE WHAT THE WORLD IS LIKE. DESCRIBE WHAT YOUR LIFE IS LIKE AND WHAT YOU'RE DOING.